



HISTOPATHOLOGICAL STUDY OF OVARIAN TUMORS: A STUDY IN A TERTIARY CARE HOSPITAL IN JHARKHAND

Pathology

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ABSTRACT

Ovary is the most common site of neoplastic and non-neoplastic lesions and are diagnosed from early childhood upto a post menopausal age.[1] They show a wide variation of clinical as well as morphological features and their incidence varies in various parts of the world.[2] The present study was done to determine the frequency of the different histological types of ovarian tumors, their age distribution and laterality of tumors and thus provide an institutional experience from Jharkhand, India.

In the present study, the most common type of ovarian tumor is the Epithelial Tumors(64%) of which Serous Cystadenoma has the highest frequency. Of all the tumors, Benign tumors has the highest frequency(67%) followed by Malignant(26%) and then Borderline Tumors(7%). Most peak at the age group between 31-40 years(28%) and at 41-50 years(26%). Unilateral tumors(89%) are more commonly seen than bilateral tumors(11%). Most bilateral tumors are malignant.

KEYWORDS

Ovarian tumors, Ovary, Histopathology.

INTRODUCTION

There are numerous types of ovarian tumors. Most are benign accounting to 80%. Ovarian cancers account for 3% of all cancers and are the 5th most common cause of deaths in females.[2] Epithelial tumors are the most common accounting to 60% of which 30% are serous and mucinous. Sex cord tumors accounts for 9% of which granulosa cell tumors account for only 1%. Of all germ cell tumors, the benign cyst teratoma accounts for 32% of all ovarian tumors.[3]

Most ovarian tumours cannot be confidently distinguished based only on clinical and gross characteristics alone. An important feature for diagnosis is the age of the patient. Laterality is also a clue to their nature.[4]

Accurate diagnosis of ovarian tumours is dependant on the knowledge of the wide range of microscopic patterns exhibited by each tumour and the cell type they may contain. Immunohistochemistry is only helpful when routine staining fails to lead to a confident diagnosis.[4]

MATERIALS AND METHODS

A total of 122 cases of ovarian mass were included.

Study Design: Prospective and Retrospective Study

Study Location: Department Of Pathology, Rajendra Institute Of Medical Sciences, Ranchi

Study Duration: March 2019 Till February 2020

Sample Size: 122 Patients

Inclusion Criteria:

1. Patients In The Age Group Of 1-80 Years presenting with an Ovarian Mass

Exclusion criteria:

1. Patients of the age group below 1 year and above 80 years
2. Non-neoplastic and Functional ovarian cyst

OBSERVATIONS AND RESULTS

Table 1 Frequency Of Different Tumours

Different Types Of Ovarian Tumours	No. Of Cases	%
Epithelial Tumours		
Serous Cystadenoma	34	28%
Borderline Serous Cystadenoma	3	2%
Serous Cystadenocarcinoma	3	2%

Mucinous Cystadenoma	21	17%
Borderline Mucinous Cystadenoma	6	5%
Mucinous Cystadenocarcinoma	8	7%
Brenners Tumour	2	2%
Clear Cell Tumour	1	1%
Total Epithelial Tumors	78	64%
Sex Cord-Stromal Tumour		
Fibroma	5	4%
Sclerosing Stromal Tumour	2	2%
Granulosa Cell Tumour	3	2%
Total Sex Cord-Stromal Tumor	10	8%
Germ Cell Tumours		
Dysgerminoma	6	5%
Mature Teratoma	16	13%
Immature Teratoma	2	2%
Mixed Germ Cell Tumour	1	1%
Total Germ Cell Tumor	25	21%
Miscellaneous		
Wolffian Tumour	1	1%
Metastatic Carcinoma	8	7%
Total	9	7%

Serous Cystadenoma (28%) outnumber all the other types of ovarian tumors followed by Mucinous Cystadenoma (17%). But Mucinous Cystadenocarcinoma (7%) shows higher frequency than Serous Cystadenocarcinoma (2%). Of the Germ Cell tumors, the mature Teratoma has the highest incidence of 13%. A rare case of Wolffian tumor of the ovary was also detected in 1 case (1%).

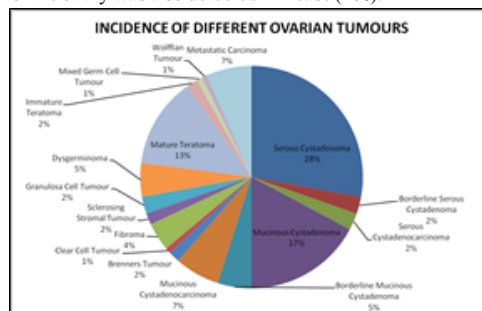


Figure 1: Graphical representation of the frequencies of different ovarian tumors

Table-II Frequency Of Benign, Boderline And Malignant Tumors

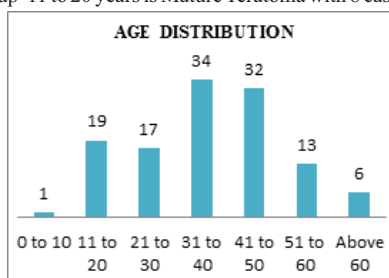
CATEGORY	NO. OF CASES	PERCENTAGE
BENIGN	82	67%
BORDERLINE	9	7%
MALIGNANT	31	26%

Table shows benign ovarian tumours with the highest incidence with 67%, malignant tumours with 26% incidence and the lowest are the borderline tumours with 7%.

Table-III: Age Distribution Of Different Tumors

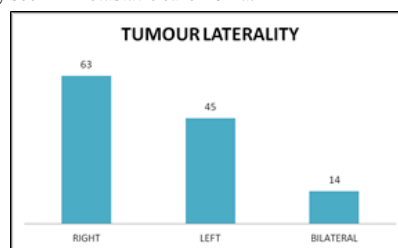
Ovarian Tumor	no. of cases	0-10	11-20	21-30	31-40	41-50	51-60	>60
Serous Cystadenoma	34	-	2	6	13	7	4	2
Borderline Serous Cystadenoma	3	1	1	-	-	1	-	-
Serous Cystadeno carcinoma	3	-	-	-	-	1	2	-
Mucinous Cystadenoma	21	-	1	6	4	7	1	2
Borderline Mucinous Cystadenoma	6	-	-	1	1	3	1	-
Mucinous Cystadeno Carcinoma	8	-	1	-	1	3	1	2
Brenners Tumor	2	-	-	-	1	1	-	-
Clear Cell Tumor	1	-	-	-	-	1	-	-
Fibroma	5	-	1	-	1	3	-	-
Sclerosing Stromal Tumor	2	-	-	-	1	1	-	-
Granulosa Cell Tumor	3	-	-	-	3	-	-	-
Dysgerminoma	6	-	3	1	2	-	-	-
Mature Teratoma	16	-	8	-	6	1	1	-
Immature Teratoma	2	-	2	-	-	-	-	-
Mixed Germ Cell Tumor	1	-	-	1	-	-	-	-
Wolffian Tumor	1	-	-	-	-	-	1	-
Metastasis	8	-	-	2	1	3	2	-
TOTAL	122	1	19	17	34	32	13	6
%		1	15	14	28	26	11	5

From the above table, we notice that the most common age group affected is that of the range 31 to 40 years of age. Most of the cases of ovarian tumours range from 31 to 50 years. The most common tumor in the age group 11 to 20 years is Mature Teratoma with 8 cases.

**Figure II: Graphical representation of age distribution of different tumors****Table-IV: Tumour Laterality Of Ovarian Tumor**

Ovarian Tumour	No. Of Cases	R	L	B/L
Serous Cystadenoma	34	17	16	1
Borderline Serous Cystadenoma	3	-	2	1
Serous Cystcarcinoma	3	3	-	-
Mucinous Cystadenoma	21	8	11	2
Borderline Cystadenoma	6	5	1	-
Mucinous Cystadenocarcinoma	8	4	2	2
Brenners Tumour	2	2	-	-
Clear Cell Tumour	1	1	-	-
Fibroma	5	2	2	1
Sclerosing Stromal Tumour	2	-	2	-
Granulosa Cell Tumour	3	1	1	1
Dysgerminoma	6	4	2	-
Mature Teratoma	16	13	3	-
Immature Teratoma	2	1	1	-
Mixed Germ Cell Tumour	1	-	1	-
Wolffian Tumour	1	1	-	-
Metastatic Carcinoma	8	1	1	6
TOTAL	122	63 52%	45 37%	14 11%

From the above table, it is noticed that the right side (52%) of ovary is more commonly involved than the left side (38%). Bilaterality is most commonly seen in metastatic carcinoma.

**Figure III: Graphical representation of the laterality of the ovarian tumor**

In the present study, a prospective and retrospective study which comprises of 122 cases of ovarian tumors in the past 1 year in the Department of Pathology, RIMS, Ranchi. In the present study, the most common type of tumors is Epithelial tumors (64%), similarly *Nalini Modepalli et al^[5]* and *R Jha et al^[6]* observed epithelial tumors as most common with 66.2% and 52.2% respectively. Of all the tumors, Benign was most commonly seen followed by Malignant and then Borderline. In this study, 67% were benign, 7% borderline and 26% were malignant. *Nalini Modepalli et al* observed 82.3% benign, 5.7% borderline and 12.1% malignant and *Kanthikar S N et al^[11]* observed 74.66% benign, 1.42% borderline and 20% malignant. Most of the tumors were noticed at 31 to 40 years of age (28%) followed by 41 to 50 years of age (26%), therefore the age group most affected is from 31 to 50 years. Similarly, *R Jha et al^[6]* also noticed the age group commonly affected were 31 to 40 years (26.7%) followed by 41 to 50 years (21.1%). Most of the tumors in the study were unilateral accounting to 89% of which right side (52%) is more commonly seen than the left side (37%), the remaining 11% are bilateral and seen mostly in malignancies. Similarly, *Nalini Modepalli et al^[5]* also observed unilaterality in 90% of which right sided (59.8%) was more than left sided (40.14%) and bilaterality (9.4%) was seen mostly in malignancies. We also noticed the tumor most commonly seen at the adolescent age group of 11 to 20 years is mature teratoma followed by dysgerminoma. A rare case of Wolffian tumor of the Ovary was also observed in this study.

CONCLUSION

A proper history including the age of the patient and laterality of lesion is important to be able to give a confident diagnosis of Ovarian Tumors due to their diverse morphology. The diagnosis is usually made based on routine Hematoxylin and Eosin stained slides but Immunohistochemistry is also required in difficult cases.

REFERENCES

- [1] S N, K., N V, D., P N, D., D B, N., & K H, S. (2014). Clinico-histopathological analysis of neoplastic and non-neoplastic lesions of the ovary: a 3-year prospective study in dhule, north maharashtra, India. Journal of clinical and diagnostic research : JCDR, 8(8), FC04-FC7. <https://doi.org/10.7860/JCDR/2014/8911.4709>
- [2] Kumar, Vinay, et al. Robbins & Cotran Pathologic Basis of Disease, South Asia Edition, Elsevier, 2018. 1023-1027p.
- [3] Christopher D.M Fletcher. Diagnostic Histopathology of Tumors. 4th ed. Vol.1. Philadelphia: Elsevier; 2013.
- [4] Mills, Stacey, et al. Sternberg's Diagnostic Surgical Pathology. 5th Edition. Vol.1., Lippincott Williams & Wilkins, 2010. 2291p
- [5] Modepalli N, Venugopal SB. Clinicopathological Study of Surface Epithelial Tumours of the Ovary: An Institutional Study. J Clin Diagn Res. 2016;10(10):EC01.EC04. doi:10.7860/JCDR/2016/21741.8716
- [6] Jha, R., & Karki, S. (2008). Histological pattern of ovarian tumors and their age distribution. Nepal Med Coll J, 10(2), 81-85.